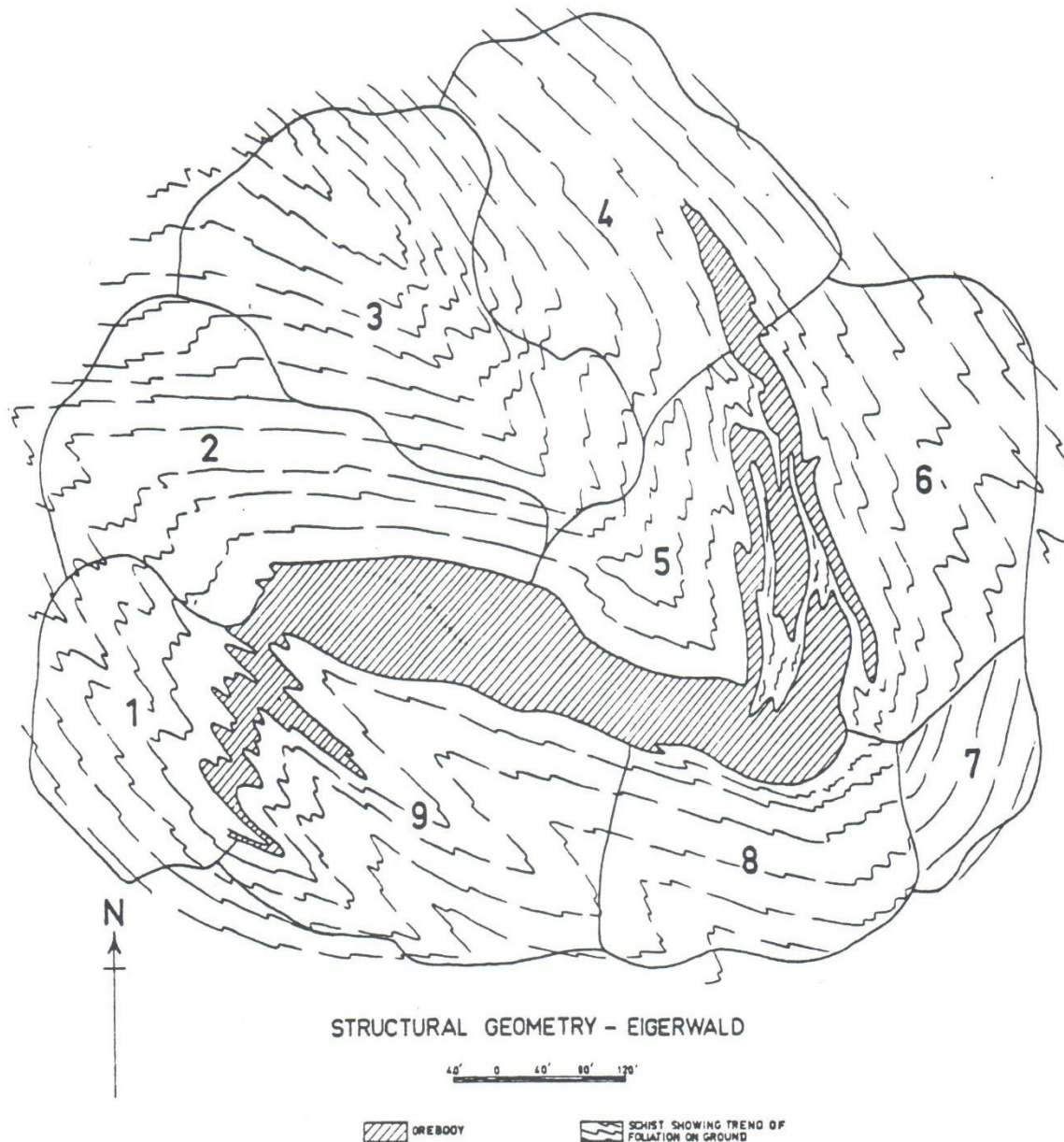


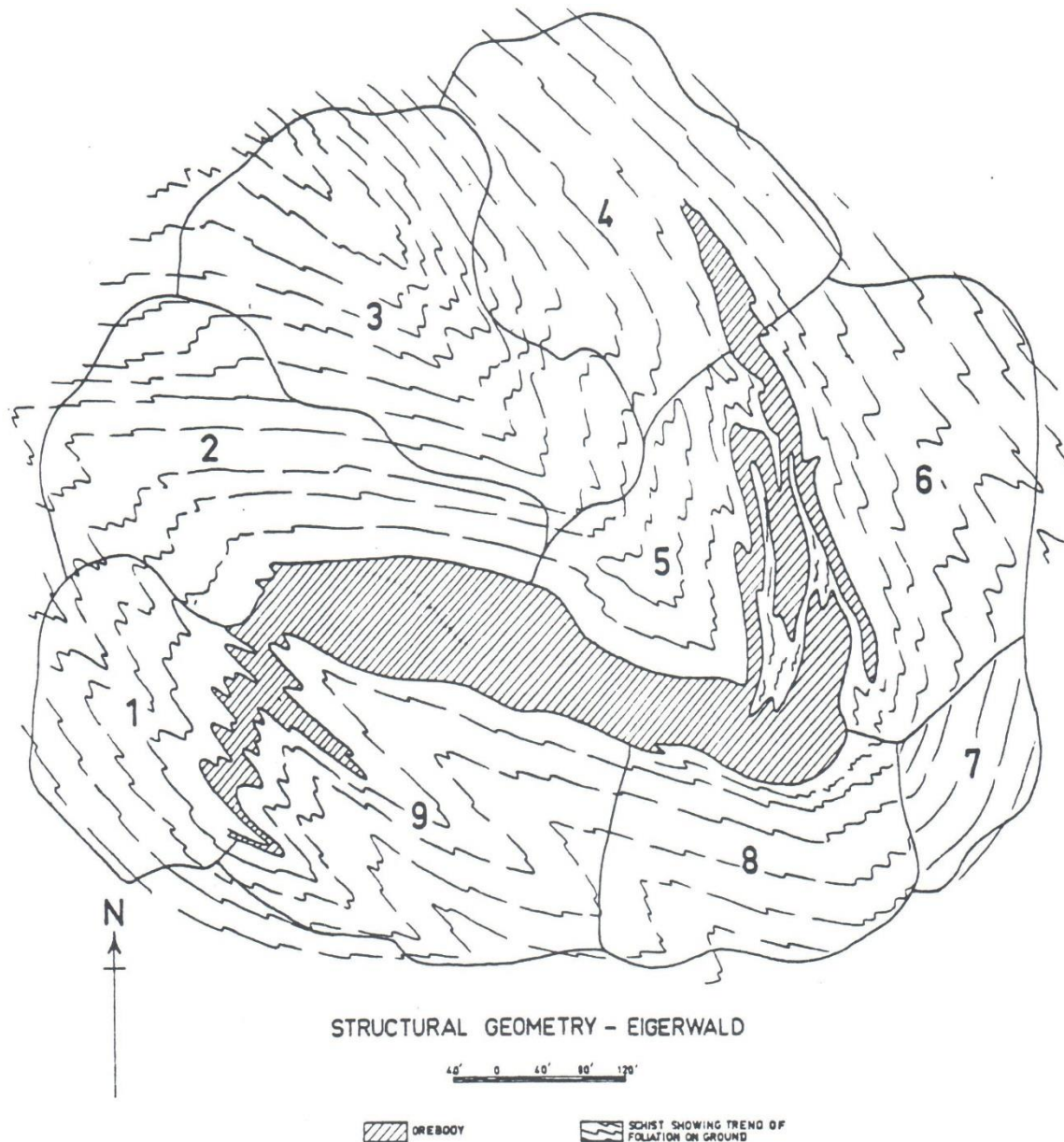
# Lab 6

Geology in Eigerwald: Fold analysis



## Geology map of Eigerwald

How many generations of folds?  
Style of folds?

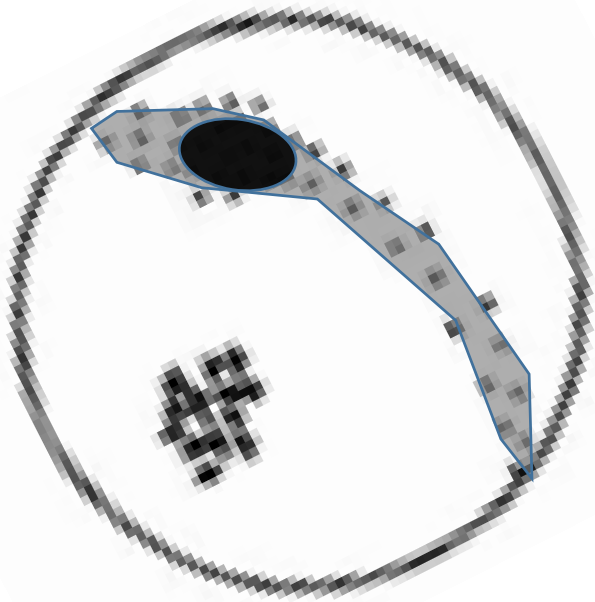


## Geology map of Eigerwald

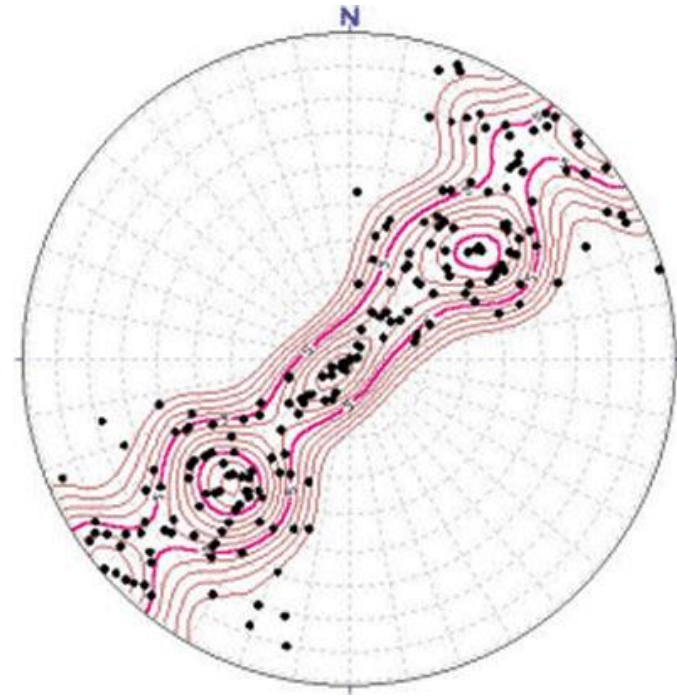
This area is divided into 9 homogenous structural domains based on the equal-area projection of structural data.

# Equal-area projection of folded surfaces

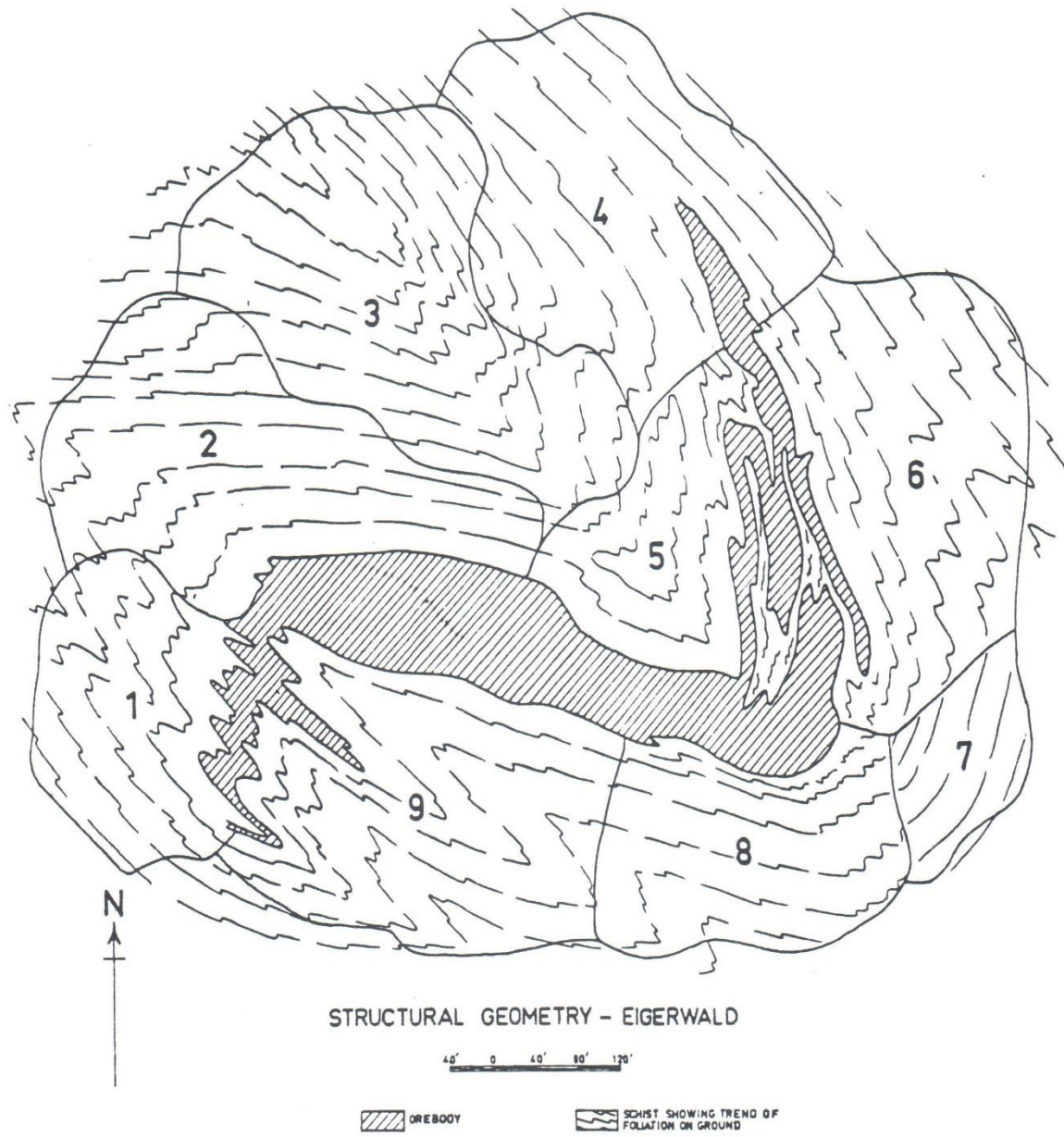
- Folded surfaces can be plotted (and are normally plotted) as poles (points on stereonet)



Based on the density of points on net, can construct contour line, and use different colors to indicate density difference.





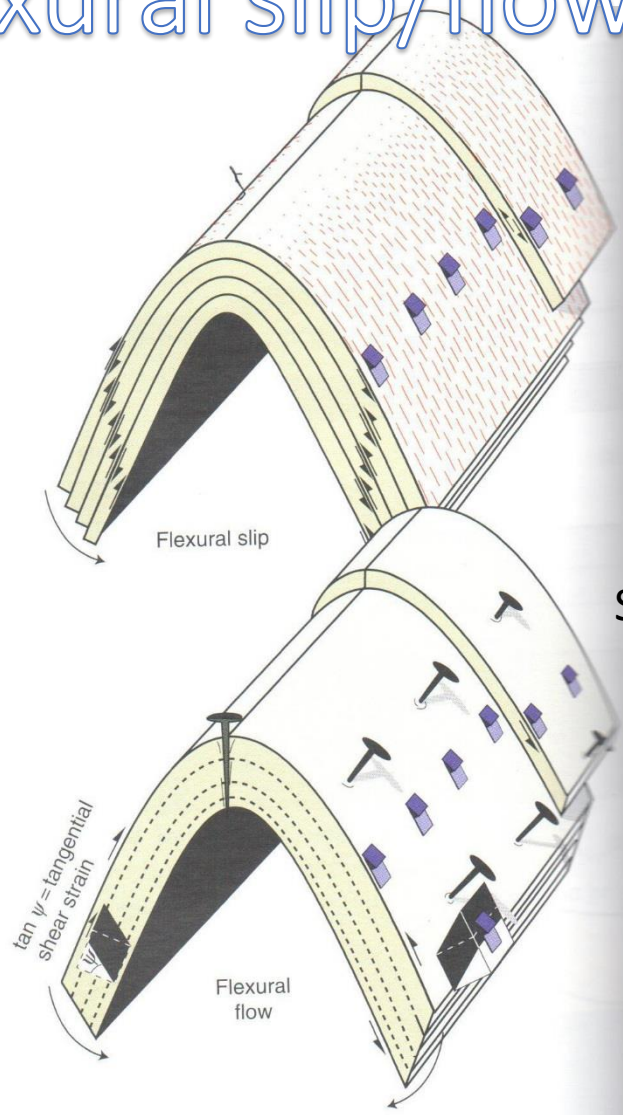


DOMAIN	$B_2$	$\pi S$	DOMAIN	$B_2$	$\pi S$
1			6		
2			7		
3			8		
4			9		
5			TOTALS		
				$B_1$	$\pi S_2$

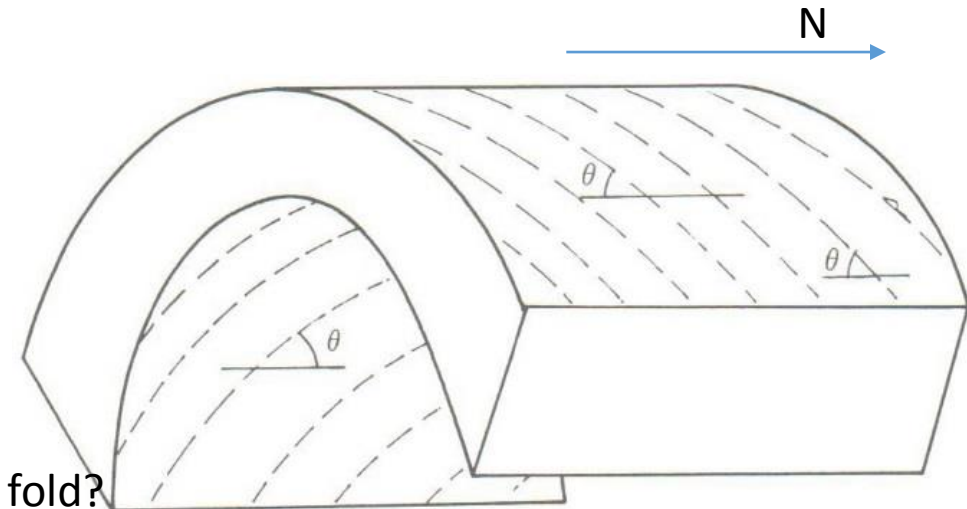
B1 Synoptic diagram

B1 is on a great circle. What type of folding is F2? Recall 3 classic fold models

# Flexural slip/flow



Fossen (2010)

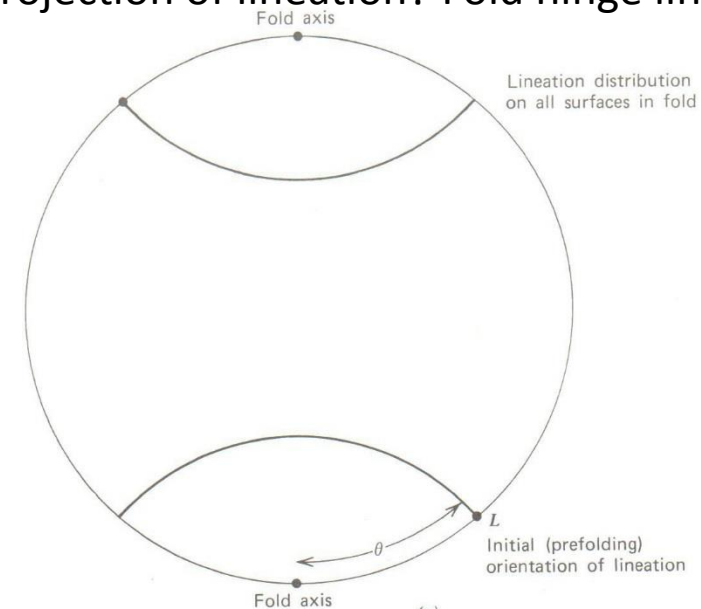


What class of fold?

Class 1B fold

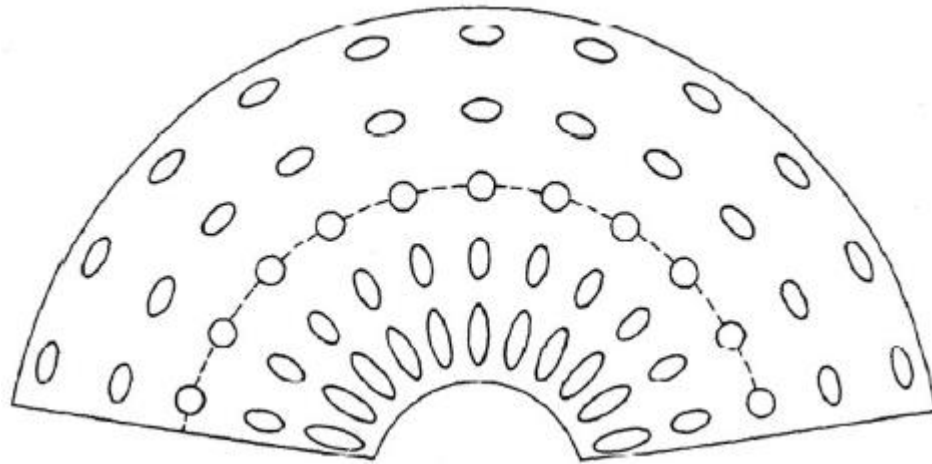
Means et al. (1976)

Stereographic projection of lineation? Fold hinge line is horizontal

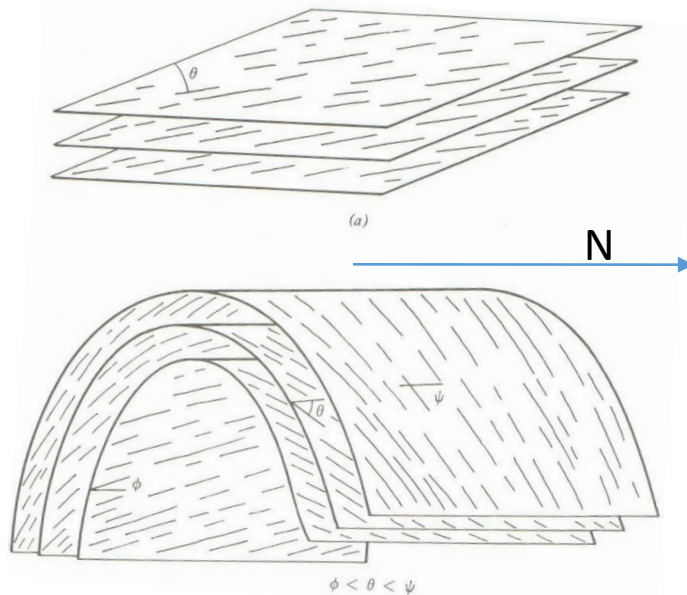




# Orthogonal flexure



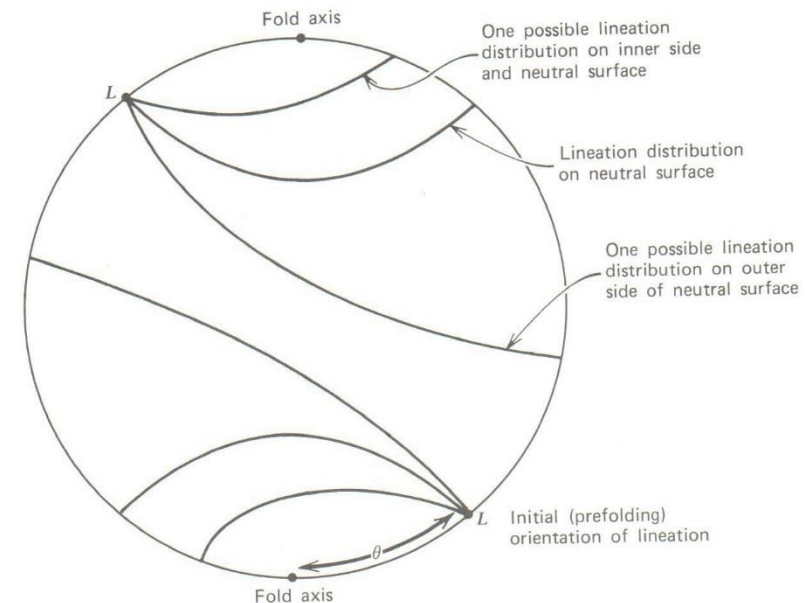
Means et al. (1976)



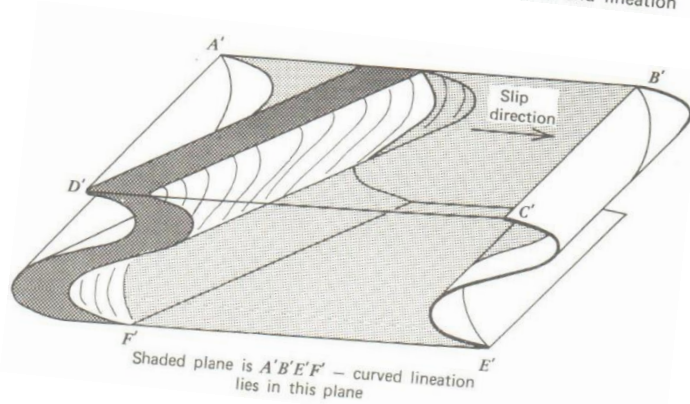
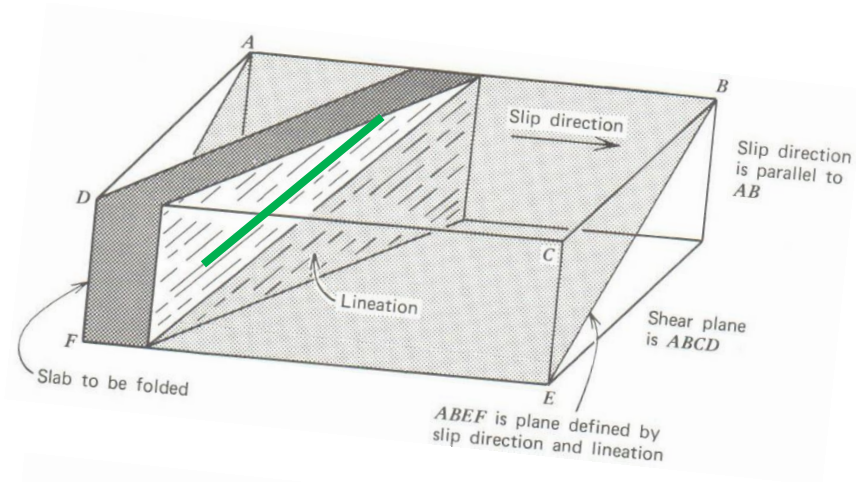
- All lines orthogonal to the layer, remain...
- Neutral surface

## Class 1B

Stereographic projection of lineation?



# Passive-shear folding



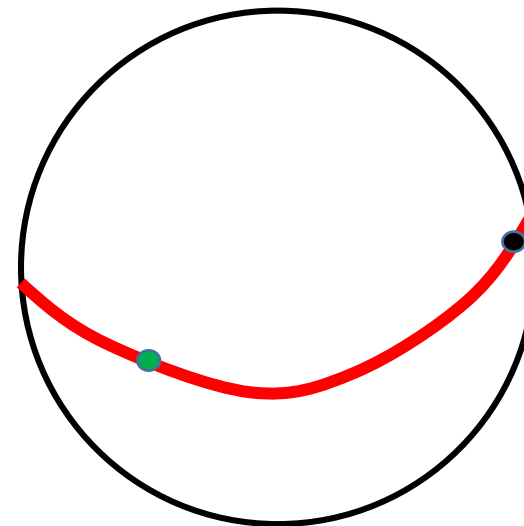
Means et al. (1976)

Which class of fold is generated?

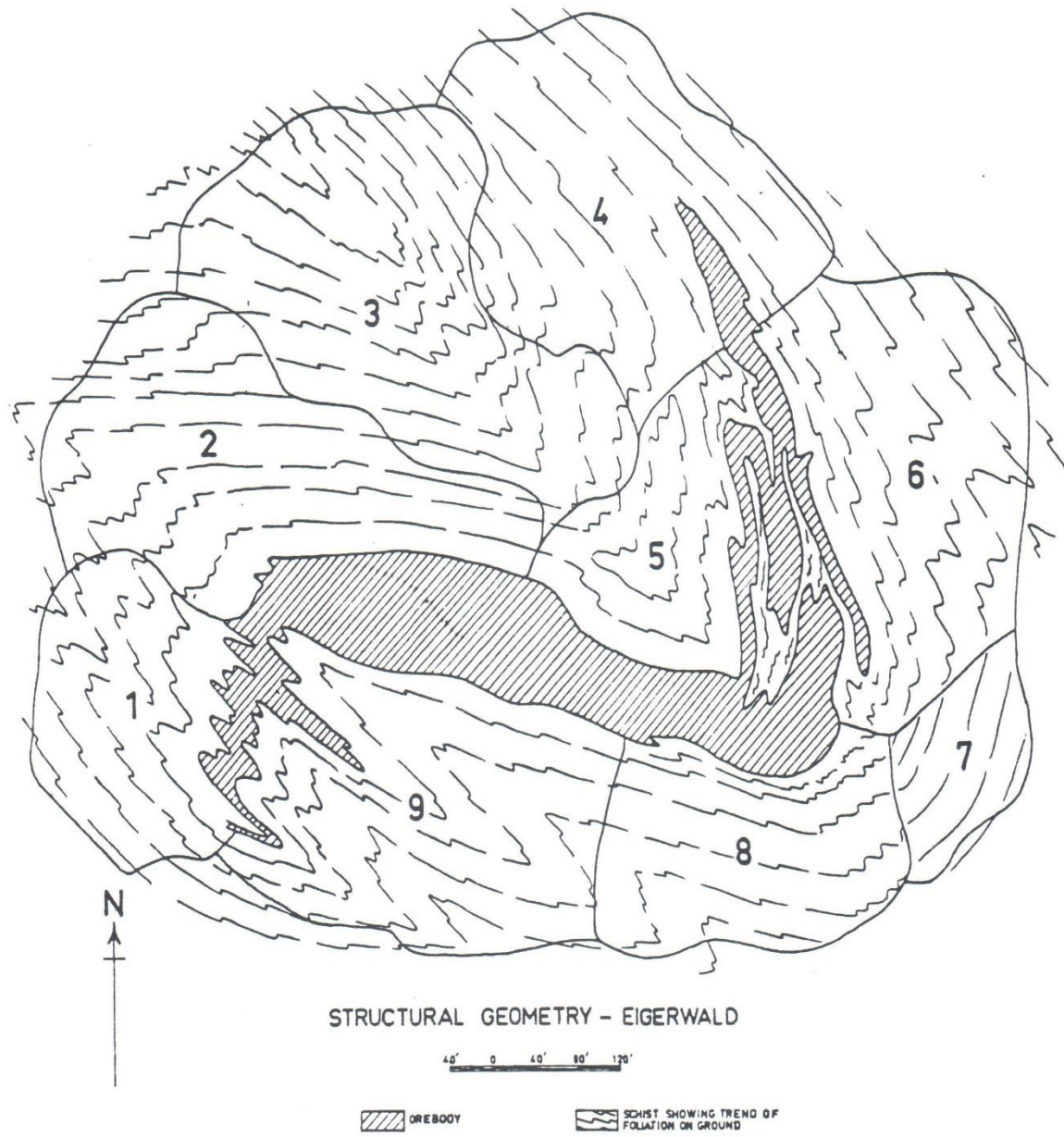
Class 2 fold

Stereographic projection of lineation?

On a great circle determined by slip direction and initial lineation orientation

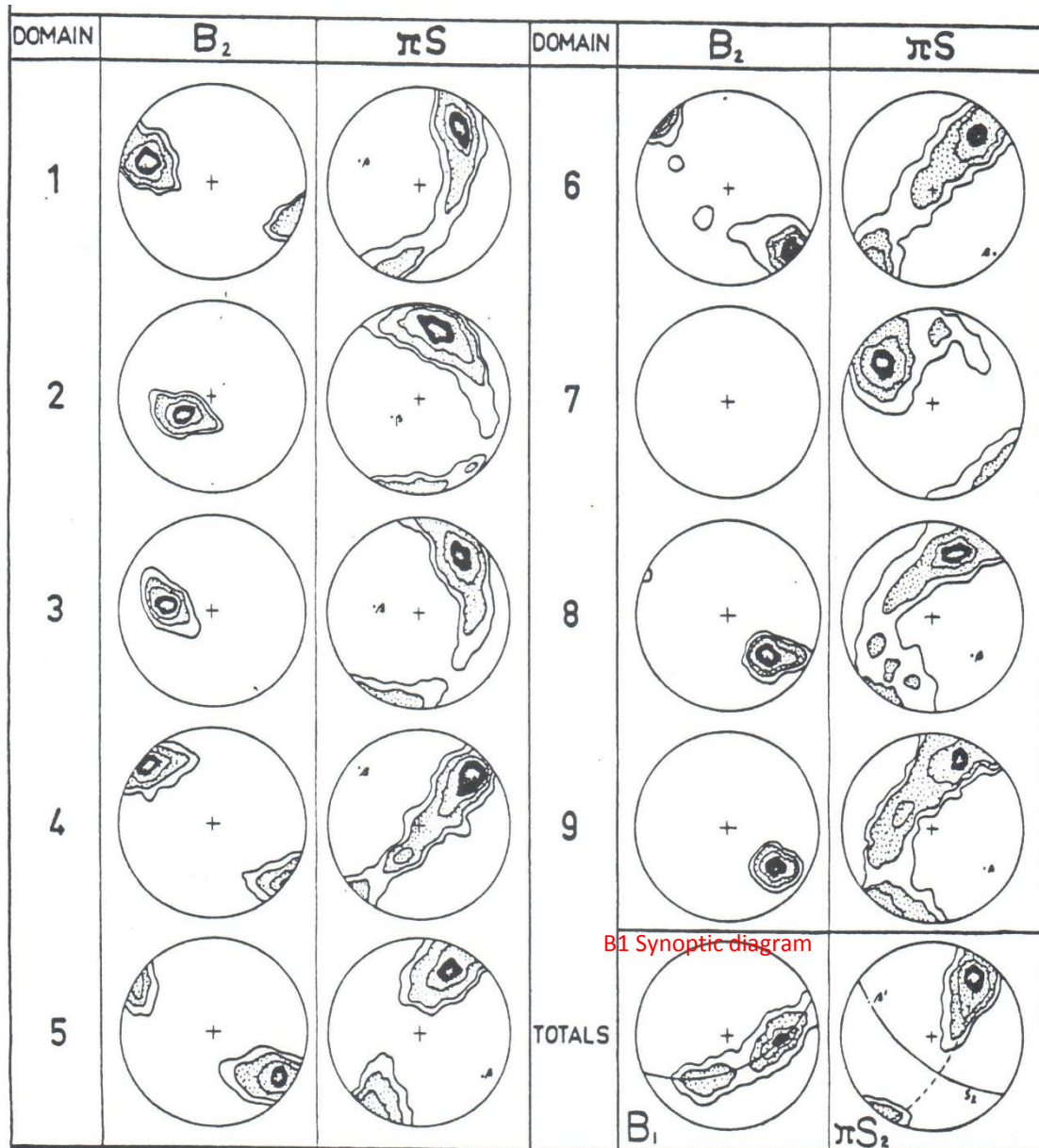






DOMAIN	$B_2$	$\pi S$	DOMAIN	$B_2$	$\pi S$
1			6		
2			7		
3			8		
4			9		
5			TOTALS		

B1 is on a great circle. What type of folding is F2? Recall 3 classic fold models  
 $\pi S$  diagram for domain 7: only show a point maximum; No F2 developed in domain 7. Why?



## Equal-area projection of structural data in Eigerwald

B1: fold axis of F1

B2: fold axis of F2

S: lithological layering

S2: axial plane of F2 fold

$\pi S$  diagram for domain 7: only show a point maximum;

$\pi S$  diagram for the other domains: (1) point maximum;  
(2) a great circle;

Poles to these great circles are coincident  
with B2 point maximum. Why?

(3) Poles to the great circles are on S2

What do the above observations tell you?

Point maximums on the  $\pi S$  diagram for each domain (except  
domain 7) are the same as on the  $\pi S_2$  diagram (Qestion1)

B1 in the whole area are plotted on a great  
circle. Why? (Question 2)